07.21.05

AF 2194

DOCKET NO.: MSFT-0677 / 183204.01 **PATENT**

09/322 852

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application of:
Richard Hasha and Stephen Springmeyer **Confirmation No.:** 8541
Application No.: 09/322,852 09/322 852 **Group Art Unit:** 2194
Filing Date: May 28, 1999 **Examiner:** Diem K. Cao
For: METHOD AND SYSTEM FOR MANAGING SOFTWARE COMPONENTS

EXPRESS MAIL LABEL NO: EV670668985US
DATE OF DEPOSIT: July 19, 2005

EV670668985US

MS Appeal Brief - Patent
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

APPEAL BRIEF TRANSMITTAL
PURSUANT TO 37 CFR § 1.192

Transmitted herewith in triplicate is the APPEAL BRIEF in this application with respect to the Notice of Appeal received by The United States Patent and Trademark Office on **May 19, 2005**.

☐ Applicant(s) has previously claimed small entity status under 37 CFR § 1.27 .

☐ Applicant(s) by its/their undersigned attorney, claims small entity status under 37 CFR § 1.27 as:

- ☐ an Independent Inventor
- ☐ a Small Business Concern
- ☐ a Nonprofit Organization.

☐ Petition is hereby made under 37 CFR § 1.136(a) (fees: 37 CFR § 1.17(a)(1)-(4) to extend the time for response to the Office Action of to and through comprising an extension of the shortened statutory period of month(s).

DOCKET NO.: MSFT-0677 / 183204.01 **PATENT**

	SMALL ENTITY		NOT SMALL ENTITY	
	RATE	FEE	RATE	FEE
☒ APPEAL BRIEF FEE	$250	$	$500	$500.00
☐ ONE MONTH EXTENSION OF TIME	$60	$	$120	$
☐ TWO MONTH EXTENSION OF TIME	$225	$	$450	$
☐ THREE MONTH EXTENSION OF TIME	$510	$	$1020	$
☐ FOUR MONTH EXTENSION OF TIME	$795	$	$1590	$
☐ FIVE MONTH EXTENSION OF TIME	$1080	$	$2160	$
☐ LESS ANY EXTENSION FEE ALREADY PAID	minus	($)	minus	($)
TOTAL FEE DUE		$0		$500.00

☒ The Commissioner is hereby requested to grant an extension of time for the appropriate length of time, should one be necessary, in connection with this filing or any future filing submitted to the U.S. Patent and Trademark Office in the above-identified application during the pendency of this application. The Commissioner is further authorized to charge any fees related to any such extension of time to Deposit Account 23-3050. This sheet is provided in duplicate.

☐ A check in the amount of **$ .00** is attached. Please charge any deficiency or credit any overpayment to Deposit Account No. 23-3050.

☒ Please charge Deposit Account No. 23-3050 in the amount of **$500.00**. This sheet is attached in duplicate.

☒ The Commissioner is hereby authorized to charge any deficiency or credit any overpayment of the fees associated with this communication to Deposit Account No. 23-3050.

Date: July 19, 2005

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Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

APPELLANTS' BRIEF PURSUANT TO 37 C.F.R. § 1.192

This brief is being filed in support of Appellant's appeal from the rejections of claims 1-42 dated January 19, 2005. A Notice of Appeal was filed on May 19, 2005.

1. REAL PARTY IN INTEREST

WILLIAM H. GATES, III is the real party in interest in the present application.

Originally, the inventors in the present application assigned their interests to CORBIS CORPORATION as recorded by the United States Patent and Trademark Office ("USPTO") on October 22, 1999 at Reel 010328, Frame 0161. CORBIS CORPORATION then assigned its interest in the present application to WILLIAM H. GATES, III as recorded on October 16, 2000 by the USPTO at reel 011193, frame 0257.

2. RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences

3. STATUS OF CLAIMS

Claims 1-42 are pending in the present application, with claims 1, 5 and 8 being the independent claims. In summary of the outstanding Official Action, claims 1-2, 4-5, 7-13, 20-23 and 37-42 stand rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over U.S. Patent No. 6,438,618 B1 (Lortz et al.) in view of U.S. Patent No. 6,185,613 (Lawson et al.). Claims 3, 6, 27 and 35 stand rejected under § 103(a) as allegedly unpatentable over Lortz et al. in view of Lawson et al. further in view of U.S. Patent No. 5,857,190 (Brown). Claims 14-15 and 19 stand rejected under § 103(a) as allegedly unpatentable over Lortz et al. in view of Lawson et al. further in view of U.S. Patent No. 6,363,435 B1 (Fernando) and claims 16-18, 24-26 and 36 stand rejected under § 103(a) as allegedly unpatentable over Lortz et al. in view of Lawson et al. further in view of U.S. Patent No. 6,446,136 B1 (Pohlmann et al.).

Claims 1-42 are reproduced in Appendix A, attached hereto, as they stand as of the date of this appeal.

4. STATUS OF AMENDMENTS

No Amendments to claims 1-42 have been filed subsequent to the final rejection.

5. SUMMARY OF CLAIMED SUBJECT MATTER

The present invention relates generally to a computer system for tracking references to objects and, more particularly, to a system that encapsulates the complexities of tracking objects as they come up and go down. A method and system for tracking the state of an entity *(e. g.,* an object) on behalf of a client *(e.g.,* an application program) is provided. The states of an entity include up and down. The tracking system of the present invention receives a request from a client to track the state of an entity. The tracking system then

watches the state of the entity to detect when the entity enters the up state. When the entity enters the up state, the tracking system performs a behavior (*e.g.*, notification) that is specified by the client to be performed when the entity enters the up state. When the entity is in the up state, the tracking system monitors the state of the entity to detect when the entity enters the down state. When the entity enters the down state, the tracking system performs a behavior (*e.g.*, notification) that is specified by the client to be performed when the entity enters the down state. When the tracking system receives a request from the client for a reference to the entity, the tracking system determines the current state of the entity and either provides a reference to the entity or indicates that a reference is not being provided. Such a reference allows a client to access the behavior of the entity.

6. ISSUES

A. Whether under 35 U.S.C. § 103(a) claims 1-2, 4-5, 7-13, 20-23 and 37-42 are unpatentable over U.S. Patent No. 6,438,618 B1 (Lortz et al.) in view of U.S. Patent No. 6,185,613 (Lawson et al.).

B. Whether under 35 U.S.C. § 103(a) claims 3, 6, 27 and 35 are unpatentable over Lortz et al. in view of Lawson et al. further in view of U.S. Patent No. 5,857,190 (Brown).

C. Whether under 35 U.S.C. § 103(a) claims 14-15 and 19 are unpatentable over Lortz et al. in view of Lawson et al. further in view of U.S. Patent No. 6,363,435 B1 (Fernando).

D. Whether under 35 U.S.C. § 103(a) claims 16-18, 24-26 and 36 are unpatentable over Lortz et al. in view of Lawson et al.and further in view of U.S. Patent No. 6,446,136 B1 (Pohlmann et al.).

7. GROUPING OF CLAIMS

Claims 1-42 stand or fall together. Each of these claims calls for the features (or related features rejected for the same reasons) of "a distributed tracking system for tracking when a software component changes state and for providing a state change notification of a change in state of the tracked software component; and a property notification system for providing a property notification to the software component when a property of another software component is set wherein software components of the system use services of both the tracking system and the property notification system."

8. ARGUMENT

Regarding issues A-D above, Appellant respectfully traverses the Examiner's rejection of Claims 1-42 under 35 U.S.C. § 103(a) as allegedly unpatentable over Lortz et al. in view of Lawson et al. and further in view of the other prior art of record because the claims patentably define over the prior art of record.

Claim 1

Deficiencies of Lortz et al. and Lawson et al.

The final Office Action in paragraph 2 alleges claim 1 is unpatentable over Lortz et al. in view of Lawson et al. under 35 U.S.C. § 103(a) as stated in the 7/14/04 non-final Office Action.

Claim 1 states:

> "1. A system for managing software components in a distributed computing environment, the system comprising:
>
> a distributed tracking system for tracking when a software component changes state and for providing a state change notification of a change in state of the tracked software component; and
>
> a property notification system for providing a property notification to the software component when a property of another software component is set wherein software components of the system use services of both the tracking system and the property notification system."

The 7/14/04 Office Action submits that Lortz et al. discloses "a system for providing a state change notification of a change in state of the tracked software component." The reasoning provided in the 7/14/04 Office Action is that Lortz et al. discloses a system where, upon a channel being changed on a television, an event is forwarded to a channel change event object and then to an in-process object of a client (Col. 8, lines 54-62). Applicants respectfully submit that this does not describe a change in state of a tracked software component, but a forwarding of an event upon which the software will act accordingly. See Col. 8 lines 57-60 wherein it is stated, "If the event indicates a channel change to a channel not listed by the filter string, the channel change event object compares the event to the filter of the next client connection..." Here, the software component is reactive and does a comparison based upon an event, but is not changing its state, nor being tracked itself. Therefore, Lortz et al. does not teach a system for providing a state change notification of a change in state of the tracked software component

The 7/14/04 Office Action also submits that Lortz et al. discloses: providing a property notification to the software component when the property of another software component is set. However, the system disclosed in Lortz et al. describes monitoring properties of a home device, not properties of a software component. Lortz et al. states "In monitoring a device, an application must be notified of certain changes in the properties of the device." (Col 3, lines 7-8). Lortz et al. describes a home device as "for example, a television, video cassette recorder (VCR), a lighting system, a security camera, a telephone and a telephone answering machine." (Col. 2, lines 65-67) Although, as described in Lortz et al., these device notifications can be from another application (Col. 3, line 10), Applicants submit they are not property notifications for properties *of* another application. Therefore, Lortz et al. does not teach providing a property notification to the software component when the property of another software component is set, but rather property notification of a home device.

Also, according to claim 1, the software component to which the property notification is given is also that one whose state change is tracked. The software component purported by the Office Action to which notification is given monitors and controls devices (Col 3, lines 4-6) as opposed to being tracked itself. Therefore, Lortz et al. does not teach a property notification system for providing a property notification to the software component (whose state change is tracked).

Lawson et al. was cited for reasons related to distributed computing, but also fails to cure the above identified deficiencies of Lortz et al. with respect to Applicants' invention.

In response to the reasoning above, the final Office Action switches arguments and contends that the *device* (as opposed to the client) referred to in Lortz et al. is the tracked

software component. Without conceding the propriety of the remarks in the Office Action, if the device of Lortz et al. corresponds to the software component of claim 1, then Lortz et al. fails to describe "a property notification system for providing a property notification to the software component when a property of another software component is set." Particularly, claim 1 states "providing a property notification to the software component." The final Office Action says the device of Lortz et al. is the software component, however, Lortz et al. does not describe providing a property notification to the device, but describes "allowing the client to send *property commands* to *change properties* of the device" (emphasis added). Col. 4, lines 10-11. Applicants respectfully submit that sending property commands does not equate to providing a property notification. A property notification is a notification of a property that was already set, while Lortz et al. describes sending property *commands* to *change* properties of a device. Col. 4, lines 10-11.

> In response to the above, the 4/22/05 Advisory Action states that: "...Lortz teaches 'device may...software object capable of receiving commands and signaling property changes' (col. 3, lines 26-30). Thus receiving signaling property changes is the same as of receiving property event/notification." Paragraph 11 of 4/22/05 Advisory Action.

However, Lortz et al. does not mention the phrase "receiving signaling property changes," as purported in the Advisory Action. Lortz et al. says a "device may comprise a home appliance, a computer hardware component, or any physical or software object capable of **receiving** commands and **signaling** property changes" Col. 3, lines 26-30 (emphasis added). Thus, although the device of Lortz et al., signals property changes (i.e., it sends out notifications of property changes of the device), it *receives commands*. Claims 1

states that the software component is provided (i.e., receives) property notifications, not commands.

Also, on page 6, the final Office Action argues that Lortz et al. teaches "providing a property notification to the software component when the property of another software component is set." The Office Action sets up a scenario that purportedly may occur in the system Lortz et al. where one client receives an event from a device, while another client is sending a property change to the same device. Here, it is unclear which object (the device or client application of Lortz et al.) the Office Action is correlating to the tracked software component of claim 1.

If the final Office Action is correlating the device of Lortz et al. to the tracked software component of claim 1, then this device (as previously explained above) does not receive property notifications, but receives *commands*. On the other hand, if the final Office Action is correlating the client of Lortz et al. to the tracked software component, then the final Office Action fails to show (and Lortz et al. does not teach) that the client is being tracked. The final Office Action has previously established that the device (not the client) of Lortz et al. now corresponds to the tracked software component of claim 1. Thus, the Office Action has not shown how the client is being tracked in Lortz et al. Also, Lortz et al. does not teach a tracking system for tracking when the client changes. If anything, the system of Lortz et al. signals property changes of devices, not clients. (See Col. 3, lines 53-65 of Lortz et al.).

"To establish prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art." MPEP § 2143.03. Since all the limitations are not taught or suggested either by Lortz et al. or Lawson et al., taken alone or in combination with each other or any other reference of record, Applicants respectfully submit

claim 1 patently defines over these references. Withdrawal of the rejections of claim 1 under 35 U.S.C. § 103(a) is thus earnestly solicited.

Improper combination of Lortz et al. and Lawson et al.

Applicants respectfully submit that Lortz et al. and Lawson et al. are improperly combined in the Office Action because the references teach away from their combination. Specifically, Lortz et al. teaches away from the system of Lawson et al. The system described in Lawson et al. is a system for global event notification in a distributed computer environment (Col 9. lines 45-60). However, Lortz et al. teaches away from using a distributed event processing system. Lortz et al. teaches that using a centralized server operating as an "independent process between the control objects and the clients" allows "connections of the control objects and the clients to be made independent of each other" (Col. 6, lines 40-43). Thus, according to Lortz et al., this capability is dependent upon the system of Lortz et al. operating in a non-distributed environment. Therefore, one of ordinary skill in the art would be led away from combining Lortz et al. and Lawson et al.

Furthermore, the system of Lortz et al. is an event notification system in a component object model system to provide support for event filtering (Col. 6, lines 48-52). Applicants submit, however, that this solves a different problem than that of Lawson et al. of how to communicate events that happen on a remote server to a subscribing local server (Col. 15, lines 55-57). Therefore, this suggests that the references are even less suitable for combination and would thus tend to lead one of ordinary skill in the art away from combining them.

In response to the above, the final Office Action states "...the examiner is unable to understand how an independent process between a client and control objects makes

the system dependent upon operating in a non-distributed environment." However, it is not the mere fact there exists in Lortz et al. an independent process between the clients and the control objects that makes the system dependent upon operating in a non-distributed environment, it is how such a system is characterized in Lortz et al. as allowing the desired connections. The language in Lawson et al. states:

> "The server, by operating as an independent process between the control objects and the clients, allows connections by the control objects and clients to be made independent of each other." Col. 6, lines 40-43.

Thus, the centralized server "operating as an independent process between the control objects and the clients" is described in Lortz et al. as that which *allows* the connections to be made in the desired fashion, making this capability dependent upon the system of Lortz et al. operating in a non-distributed (i.e., centralized) environment. Therefore, one of ordinary skill in the art would be led away from combining Lortz et al. and Lawson et al.

The final Office Action responds further by arguing that Lortz et al. does in fact disclose a tracking system in a distributed computing environment (ostensibly obviating the need, and eliminating the suggested motivation, to combine it with Lawson at al.):

> "Lortz further states that device may comprise a home appliance, a computer hardware component, or any physical or software object capable of receiving commands and signaling property changes (col. 3, lines 26-30). Therefore, the device is a software component. As shown throughout the figures the devices and applications function over a home network, i.e.

> **they are distributed from one another. Therefore, both systems deal with event handling in a distributed environment."**

However, the 7/14/2004 Office Action conceded that the system of Lortz et. al. does *not* teach a distributed tracking system:

> "...**Lortz does not explicitly teach a distributed tracking system**, and a tracking system and a property notification system separately, and software components of the system use services of both the tracking system and the property notification system."

Applicants agree with the Examiner's statement above in that Lortz et al. does not teach a distributed tracking system. Although the devices of Lortz et al. may be located physically in separate rooms (e.g., a TV is in a different room than a telephone) and client applications may be located in multiple computers, the server—which, again, operates as an independent process (as a layer between control objects and clients)—is in fact centralized. Since the server process is centralized, and since tracking is conducted through this server process, the Examiner's statement above is correct that the tracking system of Lortz et al. is not distributed but, instead, centralized in this server process. Thus, Lortz in fact teaches away from a distributed system by effectively teaching away from a decentralized system altogether.

The final Office Action then continues in response to Applicants' contention that Lortz et al. teaches away from a distributed tracking system by referring to what Lawson et al. says:

> "Lawson teaches that the invention is used with virtually any underlying event notification system. The present invention of Lawson presumes an underlying event notification system which: (1) allows local event consumers to register for notification of an event, and (2) sends notification of events that occur to registered local event consumers..." Page 4, final Office Action.

However, regardless of what Lawson et al. says about underlying event notification systems, it does not rebut the fact that Lortz et. al does not teach a distributed tracking system and in fact teaches away from a distributed tracking system. Therefore, since all the limitations of claim 1 are not disclosed in either one of Lortz et al. or Lawson et al. and it is improper to combine references where the references teach away from their combination (In re Grasselli, 713 F.2d 731, 743, 218 USPQ 769, 779 (Fed. Cir.1983)), reversal of the rejections of claim 1 under 35 U.S.C. § 103(a) is earnestly solicited.

Also, according to the 7/14/2004 Office Action, the reason and suggested motivation behind the combination Lortz et al. and Lawson et. al was to cure the deficiency of Lortz et al. of not disclosing a distributed tracking system.

> "It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Lortz and Lawson because it improves the performance of the system, when using distributed system, if one server down, the system still running." Page 3, Paragraph 7 of 7/14/2004 Office Action.

Now that the final Office Action is arguing that Lortz et al. *does* in fact teach a distributed tracking system, it is unclear what suggested motivation, if any, there is to combine Lortz et al. with Lawson et al. Although the final Office Action mentions that "Lawson, when combined with Lortz would improve the functionality of performing event notification in a component object system," it is unclear how Lawson et al. would be specifically modified with features of Lortz et al. to create this improved functionality, or how the deficiencies of Lawson et al. would be cured by the combination. To establish a prima facie case of obviousness...there must be some suggestion or motivation...to modify the reference or combine reference teachings. MPEP 2143. Thus, there is no specific motivation or modification described by the Office Actions, only a "combination to improve functionality of an event notification system."

Therefore, as described above, since the combination of Lortz et al. with Lawson et al. is not proper, reversal of the rejection of claim 1 as allegedly unpatentable over Lortz et al. in view of Lawson et al. under 35 U.S.C. § 103(a) is earnestly solicited.

"To establish prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art." MPEP § 2143.03. Since all the limitations are not taught or suggested either by Lortz et al. or Lawson et al., taken alone or in combination with each other or any other reference of record, Applicants respectfully submit claim 1 patently defines over these references. Withdrawal of the rejections of claim 1 under 35 U.S.C. § 103(a) is thus earnestly solicited.

Claims 2-4 and 40

Claims 2-4 and 40 depend directly from claim 1 and are believed to be allowable for the same reasons. Reversal of the rejections of claims 2-4 under 35 U.S.C. § 103(a) is thus earnestly solicited.

Claims 5-7 and 41

Claim 5 shares the following common element with claim 1: "a distributed tracking system for tracking when a software component changes state and for providing a state change notification of a change in state of the tracked software component," and with respect to that element, is believed to be allowable for the same reasons as claim 1. Claims 6-7 and 41 depend directly from claim 5 and are believed to be allowable for the same reasons. Reversal of the rejections of claims 2-4 under 35 U.S.C. § 103(a) is thus earnestly solicited.

Claims 8-39 and 42

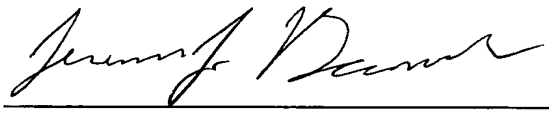
With respect to the language of claim 8 "via a distributed tracking system, tracking when a software component changes state and providing a state change notification of a change in state of the tracked software component," and "providing a property notification to the software component when a property of at least one of the software component and another software component is set," the Office Action cites the same reasons for rejection as in claim 1. Thus, with respect to this claim language, Applicants submit claim 8 is allowable for the same reasons given above by Applicants as for claim 1. Claims 9-39 and 42 depend from claim 8 and are believed to be allowable for the same reasons.

Reversal of the rejections of claims 8-39 and 42 under 35 U.S.C. § 103(a) is thus earnestly solicited.

Conclusion

Applicants thus submit that claims 1-42 patentably define over Lortz et al. in view of Lawson et al., or any other reference of record, taken alone or in combination. For all the foregoing reasons, Appellant respectfully requests that the Board reverse the rejections of claims 1-42.

Respectfully submitted,



Date: July 19, 2005

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APPENDIX A

Claims on Appeal

1. A system for managing software components in a distributed computing environment, the system comprising:

a distributed tracking system for tracking when a software component changes state and for providing a state change notification of a change in state of the tracked software component; and

a property notification system for providing a property notification to the software component when a property of another software component is set wherein software components of the system use services of both the tracking system and the property notification system.

2. The system of claim 1, further including:

an event notification system for providing an event notification to the software component when at least one of the software component and another software component generates an event.

3. The system of claim 1, further including:

a logging system for logging records of activity of the software component.

4. The system of claim 1, further including:

a directory component that receives a tracking reference and returns a corresponding behavioral reference.

5. A system for managing software components in a distributed computing environment, the system comprising:

a distributed tracking system for tracking when a software component changes state and for providing a state change notification of a change in state of the tracked software component; and

an event notification system for providing an event notification to the software component when another software component generates an event, wherein software

components of the system use the services of the tracking system and the event notification system.

6. The system of claim 5, further including:

a logging system for logging records of activity of the software component.

7. The system of claim 5, further including:

a directory component that receives a tracking reference and returns a corresponding behavioral reference.

8. In a system for a distributed computing environment, wherein the system includes a communications bus, a bus manager having at least one bus management component, at least one server node and at least one client node, wherein said at least one server node, said at least one client node and said at least one bus management component are interconnected via said communications bus, and wherein each of said at least one client node includes at least one client resource for requesting notification when at least one of an event is generated, a server resource of said at least one server node changes state or a server resource of said at least one server node changes a property, a method for managing resources of the system, comprising:

via a distributed tracking system, tracking when a software component changes state and providing a state change notification of a change in state of the tracked software component; and

providing a property notification to the software component when a property of at least one of the software component and another software component is set.

9. A method according to claim 8, further comprising:

providing an event notification to the software component when at least one of the software component and another software component generates an event.

10. A method according to claim 8, wherein said tracking includes:

receiving by the system a request from the client to track a state of the object;

watching the state of the object to detect when the object enters the up state and when the object enters the up state, first performing at least one behavior that is specified by the client to be performed when the object enters the up state and when the object is in the up

state, monitoring the state of the object by the system to detect when the object enters the down state; and

monitoring the state of the object to detect when the object enters the down state, and

when the object enters the down state, second performing at least one behavior that is specified by the client to be performed when the object enters the down state.

11. A method according to claim 8, wherein said providing a property notification includes:

first registering by the client resource to track a server resource;

after the server resource enters the up state, second registering by the client resource to watch a property of the server resource; and

after the property of the server resource is set, invoking by the server resource a property set function of the client resource.

12. A method according to claim 9, wherein said providing an event notification includes:

registering by a client resource an interest in an event type;

upon the occurrence of an event classified with said event type, providing an asynchronous event signal that is distributed to all client resources that have registered to listen for the signal.

13. A method according to claim 12, wherein each event has an associated event type whereby event types are aggregated types.

14. A method according to claim 13, wherein each event has an associated event type whereby event types are hierarchically organized.

15. A method according to claim 14, wherein registering by a client resource for a particular event type includes registering the client resource for all event types falling with the hierarchical classification for the particular event type.

16. A method according to claim 14, wherein event types include a timer event type.

17. A method according to claim 16, wherein a timer event type is one of a catastrophic timer event, a warning timer event and an informational timer event.

18. A method according to claim 17, wherein an informational timer event is one of a start-up timer event and a shut-down timer event.

19. A method according to claim 14, wherein the hierarchy of an event type embedded in the identification of the event type.

20. A method according to claim 9, wherein said providing an event notification includes:

registering by a client resource of a client node with a listener component an interest in listening for an event, wherein said registering includes invoking a listen message and specifying an event type to the listener component; and

receiving by the client resource from the listener component an event notify message along with event information when an event of that event type is generated.

21. A method according to claim 20, wherein said providing an event notification further includes:

un-registering by the client resource the interest in listening for the event, wherein said un-registering includes invoking a stop listening message along and specifying the event type to the listener component.

22. A method according to claim 21, wherein each client node has a listener component through which is routed all event related messages for all client resources registered to listen for events on the node.

23. A method according to claim 22, wherein a listener component of a client node routes event-related messages to a listener bus management component whereby the listener component notifies the listener bus management component to listen for all event types for which client resources are registered to listen for events on the client node.

24. A method according to claim 23, wherein each listener component includes a listener table cache that contains a mapping from each event type for which a listen request has been registered and for each client that has registered for the event type, such that when the listener component receives an event notification, the listener component accesses the listener table cache to notify each client resource registered to listen for the event type.

25. A method according to claim 23, wherein the listener bus management component includes a listener table that contains a mapping from each event type to the registering client nodes such that when the listener bus management component receives an event posting, the listener bus management component notifies each node that has registered to listen for events of the event type and for events of any event type that is aggregated within the event type.

26. A method according to claim 25, wherein the listener bus management component notifies each node that has registered to listen for events of the event type and for events of any event type that is a hierarchical parent of the event type.

27. A method according to claim 8, further including:
logging activity of the software component in at least one log record.

28. A method according to claim 27, wherein each of the at least one log record comprises at least one of: type information, time information, creator information and text information.

29. A method according to claim 27, wherein said logging includes logging at a local log facility and logging at a central log facility.

30. A method according to claim 29, wherein each client node includes an instance of a local log facility which receives all log records from various software components on the client node buffers the log records until they are transmitted to the central log facility.

31. A method according to claim 30, wherein a local log facility is configured to forward its records to another local log facility instead of the central log facility.

32. A method according to claim 29, wherein there is only one instance of the central log facility for the whole system which accepts all log records from all components within the system and whereby the central log facility provides for the final storage of logging information.

33. A method according to claim 29, wherein the central log facility provides long term, off line, archival of the entire system.

34. A method according to claim 29, wherein the central log facility provide for on-line viewing of a desired portion of the log records.

35. A method according to claim 27, wherein said logging is capable of being disabled.

36. A method according to claim 8, wherein a server node of said at least one server node is also a client node of said at least one client node.

37. A computer readable medium comprising computer executable instructions for performing the method of claim 8.

38. A modulated data signal carrying computer executable instructions for performing the method of claim 8.

39. A computing device comprising means for performing the method of claim 8.

40. The system of claim 1 for managing software components in a distributed computing environment wherein said another software component is the tracked software component.

41. The system of claim 5 for managing software components in a distributed computing environment wherein said another software component is the tracked software component.

42. The method of claim 8 for managing resources of a distributed computing environment wherein said another software component is the tracked software component.